APEX

January 14, 2014

Mr. Dwight Leisle
Port of Portland
7200 NE Airport Way
Portland, Oregon 97218

Re: Bench-Scale Sieve Test Results – OU2
Swan Island Upland Facility
Portland, Oregon
ECSI No. 271
1115-16

Dear Mr. Leisle:

This letter presents the results of bench-scale mechanical sieve testing completed in support of the Remedial Design (RD) for Operable Unit 2 (the Facility or OU2) at the Swan Island Upland Facility (SIUF) in Portland, Oregon (Figures 1 and 2).

OBJECTIVES

The Feasibility Study (FS) noted that the soil to be excavated consists primarily of sand and gravel, and that mechanical screening may be a feasible technology to reduce the volume of soil removed to an off-site landfill. The goal of the bench-scale testing is to verify the feasibility of mechanical screening to reduce the disposal volume. The specific objectives of the bench-scale sieve test are to assess the following:

- Cost feasibility of mechanical separation of gravel from finer-grained soil;
- Technical feasibility of mechanical separation of gravel from finer-grained soil;
- Arsenic concentrations in the processed materials; and
- Waste designation for the material to be disposed of.

FIELD SAMPLING

The sample collection and field sieving were conducted on November 23, 2013. The sampling was completed during a dry period that included 10 days of no recorded accumulation at the nearest rain gauge. The dry period was targeted to best replicate the expected construction work weather.

Figure 3 shows the proposed excavation area divided into 5 approximately equal areas, designated areas "a" through "e". Two sub-samples were collected at the approximate center of each area. At each location, one sub-sample was collected from the depth range of 0 to 6 inches and one sub-sample was collected from the depth range of 6 to 12 inches. The samples were collected and processed using the following protocols.

- A consistent sample volume of soil was collected for each sub-sample (approximately 1 gallon or 15 pounds). As the soil was placed into the measuring container, the layers were tamped to achieve similar density for each sub-sample collected.

3015 SW First Avenue, Portland, OR 97201 T 503.924.4704 F 503.943.6357 www.apexcos.com

- The material collected at the sub-sample locations was collected to the full depth of the sample interval. Vertical side walls were maintained, as practicable.
- Once a full sub-sample volume was collected, the material was placed in a stainless steel bowl and homogenized.
- An 8-ounce sample was collected for arsenic analysis at each of the five sample locations at both depth ranges.
- After collecting the "a" through "e" sub-samples, the 0-6-inch and 6-12-inch sub-samples were each processed as follows.
    - The "a" through "e" sub-samples were combined and thoroughly homogenized.
    - An 8-ounce sample was collected for arsenic analysis using the following labeling protocol: "CompSieveTest.#-#" where "#-#" is the depth range in inches (either 0-6 or 6-12). These samples provide an arsenic concentration for the composite sample at both depth ranges.
    - The remainder of the homogenized sample was passed through a cleaned No. 4 (4.25 mm openings) rocker sieve to separate gravel from finer-grained soil (to simulate construction screening). The material was sieved until no further substantive material passed through the screen based on a visual assessment.
    - The material passing the No. 4 screen and retained on the screen were each weighed.
    - From the material passing the No. 4 sieve, a 32-oz. sample (four 8-oz jars) was collected using the following labeling protocol: "Minus4CompSieveTest.#-#" where "#-#" is the depth range in inches (either 0-6 or 6-12).
    - From the material retained on the No. 4 sieve, a 32-oz. sample (four, 8-oz jars) was collected using the following labeling protocol: "Plus4CompSieveTest.#-#" where "#-#" is the depth range in inches (either 0-6 or 6-12).
- The excess material was combined and returned to the site at sub-sample location "d". The remaining holes were graded/filled using on-site material.
- The following samples were submitted to the laboratory.
    - Twelve 8-oz. samples (one jar for each sample) for arsenic analysis:
        - SieveTest.0-6a through SieveTest.0-6e;
        - SieveTest.6-12a through SieveTest.6-12e;
        - CompSieveTest.0-6; and
        - CompSieveTest.6-12.
    - Four 32-oz. samples (four jars for each sample for a total of 16, 8-oz. jars) for sieve testing:
        - Minus4CompSieveTest.0-6;
        - Minus4CompSieveTest.6-12;
        - Plus4CompSieveTest.0-6; and
        - Plus4CompSieveTest.6-12.

LABORATORY TESTING

Mechanical Sieve Testing. The laboratory conducted the following mechanical sieve testing using ASTM D6913.

- On each "Minus4CompSieveTest.#-#" (2 total), mechanical sieve analysis was conducted using the following sieve stack: No. 10, No. 40, No. 100, No. 200, and Pan.
- On each "Plus4CompSieveTest.#-#" (2 total), mechanical sieve analysis was conducted using the following sieve stack: ½-inch, No. 4, No. 10, No. 40, No. 100, No. 200, and Pan. The material from each of these tests that passed the No. 4 sieve was collected and labeled "Plus4PNo.4.#-#" where "#-#" is the depth range in inches (either 0-6 or 6-12).

Chemical Analysis. Laboratory chemical analyses consisted of the following.

- Total arsenic by EPA Method 6010:
  - SieveTest.0-6a through SieveTest.0-6e;
  - SieveTest.6-12a through SieveTest.6-12e;
  - CompSieveTest.0-6;
  - CompSieveTest.6-12;
  - Minus4CompSieveTest.0-6;
  - Minus4CompSieveTest.6-12;
  - Plus4CompSieveTest.0-6 (after mechanical grinding to reduce particle size);
  - Plus4CompSieveTest.6-12 (after mechanical grinding to reduce particle size);
  - Plus4PNo.4.0-6; and
  - Plus4PNo.4.6-12.
- Toxicity characteristic leaching procedure (TCLP) arsenic by EPA Method 1311/6010.
  - CompSieveTest.0-6;
  - CompSieveTest.6-12;
  - Minus4CompSieveTest.0-6; and
  - Minus4CompSieveTest.6-12.

RESULTS

Results of field sieving, laboratory sieving, and chemical analyses are listed in Tables 1 through 3, respectively. The analytical laboratory report is included as Attachment A. A data quality review was completed and there were no issues identified.

DATA EVALUATION

Cost Feasibility of Mechanical Separation of Gravel. Table 1 shows that approximately 50 percent of the material to be excavated is gravel (greater in size than the No. 4 sieve opening of 4.25 mm). The following evaluation demonstrates that, pending evaluation of arsenic data, there is sufficient gravel present to justify separating the gravel fraction prior to disposal.

Neglecting issues related to arsenic concentrations, the cost effectiveness of sieving the excavated material prior to disposal depends on the quantity of gravel present. Separating the gravel fraction from the excavated soil has both increased costs and cost savings. The increased costs are independent of the amount of gravel (i.e., the costs depend on mobilization of equipment and the total volume of material processed). Potential cost savings (i.e., decreased amount of material disposed and decreased amount of fill required) are directly proportional to the quantity of gravel. From the feasibility study cost estimates, it can be shown that the estimated break-even point (the point at which the cost of sieving equals the savings) is 29 percent gravel. Because there is more gravel present than the break-even point, separation of gravel to reduce disposal volume is economically feasible.

Technical Feasibility of Separation of Gravel. Table 2 shows the results of laboratory mechanical sieving of the materials previously separated by field mechanical sieving. Based on these results, the following conclusions are drawn.

- The grain size distribution in the 6- to 12-inch depth range is slightly finer but similar to the 0- to 6-inch depth range.
- The coarse fraction material consists of approximately 97 percent gravel-sized particles.
- Of the fine-grained material that remained in the coarse fraction after field sieving, half of the material consists of coarse sand (material retained on the No. 10 sieve).

These results demonstrate that field mechanical sieving is effective in separating coarse material from fine-grained material. Approximately 97 percent of the material retained on the No. 4 sieve during field screening consisted of gravel, and nearly 99 percent consisted of gravel and coarse sand (greater than 2 mm particle size).

Total Arsenic Concentrations in Processed Materials. Table 3 presents the results of the total arsenic analyses. Based on these results, the following conclusions are drawn.

- Total arsenic results for individual samples are consistent with prior results. The following summary compares results from the recent sampling with prior sampling in the same areas.

Sampling Event	Samples	Depth Range (inches)	Arsenic Concentration (mg/kg) Range	Arsenic Concentration (mg/kg) Average
Sieve Test	SieveTest.0-6a thru e	0 to 6	9.5 to 478	170
Remedial Design	FS-8, FS-9, FS-16, FS-24 thru 34	3 to 9	6.7 to 629	81
Sieve Test	SieveTest.6-12a thru e	6 to 12	6.6 to 35	18
Remedial Design	FS-8, FS-9, FS-16, FS-24 thru 34	15 to 21	2.2 to 6.2	4.1

- Total arsenic results for composite samples are consistent with individual sample results. The following summary compares the average concentration from individual samples to the composite concentration for the same depth range.

Samples	Arsenic Concentration (mg/kg)
SieveTest.0-6a thru e	170 (avg.)
CompSieveTest.0-6	230
SieveTest.6-12a thru e	18 (avg.)
CompSieveTest.6-12	10

- The total arsenic concentration in the silt/sand fraction from the field mechanical sieving is substantively the same as the concentration in the total composite sample (see summary below). Given the fundamental premise that chemical contamination is generally contained within the finer soil fraction, this result appears inconsistent. However, this is the expected result. In the laboratory, the chemist selects an aliquot of approximately 1 gram to complete the chemical analysis. Consequently, the sample actually analyzed will be biased toward the finer fraction of the overall sample because of the small aliquot mass, resulting in similar concentrations.

Samples	Arsenic Concentration (mg/kg)
CompSieveTest.0-6	230
Minus4CompSieveTest.0-6	210
CompSieveTest.6-12	10.4
Minus4CompSieveTest.6-12	17.5

- At corresponding depths, the total arsenic concentration in the fine-grained material that remained in the coarse fraction after field sieving (Plus4PNo.4.0-6 and Plus4PNo.4.6-12) is less than the arsenic concentration in the fine fraction after field sieving (Minus4CompSieveTest.0-6 and Minus4CompSieveTest.6-12). This result is explained if it is assumed that the arsenic is present primarily in the material passing the No. 10 sieve (i.e., present in the medium sand and finer fraction). The grain size data (Table 2) show that the relative proportion of material retained on the No. 10 sieve is greater for the fine-grained material that remained in the coarse fraction after field sieving, so it follows that the arsenic concentration would be lower.

- The total arsenic concentration in the coarse fraction after field sieving and laboratory grinding (7.1 mg/kg and less than 4.1 mg/kg for the 0- to 6-inch depth range and 6- to 12-inch depth range, respectively) is less than the default background concentration of 8.8 mg/kg.

Waste Designation Consideration. The material that will be disposed of will consist of either the entire excavation volume (if mechanical separation is not used) or the finer fraction material following mechanical sieving. Samples of each of these materials were analyzed for TCLP arsenic and results were below the method reporting limit of 0.05 mg/L (Table 3). Since this concentration is less than the characteristic hazardous waste limit for arsenic of 5 mg/L, the materials would classify as solid waste.

CONCLUSIONS SUMMARY

Based on the results of the bench-scale sieve testing, the following are concluded.

- Mechanical separation is cost-effective because approximately 50 percent of the material consists of gravel and the break-even point is approximately 29 percent gravel.

- Mechanical separation is technically feasible because the material retained on the No. 4 sieve consisted of nearly 99 percent coarse sand and gravel.
- After mechanical separation, total arsenic concentrations in the coarse fraction material (targeted for re-use on-site) are less than the default background concentration of 8.8 mg/kg.
- Material targeted for off-site disposal would be designated as a solid waste.

Any questions about these results should be directed to the undersigned.

Sincerely,

REGISTERED PROFESSIONAL ENGINEER
15,147 PE
OREGON
OCT. 2, 1980
HERBERT F. CLOUGH
EXPIRES: DEC. 31, 2015

Herb Clough, P.E.
Principal

Michael J. Pickering, R.G.
Senior Associate Hydrogeologist

ATTACHMENTS

Table 1 – Surface Soil Field Grain Size Results
Table 2 – Surface Soil Laboratory Grain Size Results
Table 3 – Surface Soil Analytical Results - Arsenic and TCLP Arsenic

Figure 1 – Facility Location Map
Figure 2 – Facility Vicinity Map
Figure 3 – Sampling Plan

Attachment A – Analytical Laboratory Reports

Table 1
Surface Soil Field Grain Size Results
Operable Unit 2, Daimler Leasehold, Swan Island Upland Facility
Portland, Oregon

Sample Name	Depth Interval (inches)	Weight (lbs)	
		# 4 Sieve > 4.25mm	Pan < 4.25 mm
CompSieveTest.0-6	0 - 6	14.0	12.8
% Total		52.2%	47.8%
CompSieveTest.6-12	6 - 12	9.0	10.2
% Total		46.9%	53.1%

Table 2
Surface Soil Laboratory Grain Size Results
Operable Unit 2, Daimler Leasehold, Swan Island Upland Facility
Portland, Oregon

Sample Name		Weight (grams) 1/2" Sieve	# 4 Sieve > 4.25 mm	# 10 Sieve > 2.00 mm	# 40 Sieve > 475 µm	# 100 Sieve > 150 µm	# 200 Sieve > 75 µm	Pan < 75 µm	Initial Wt.	Post Sieve	Percent Recovery
Minus4CompSieveTest.0-6	Mass	--	--	388.04	723.41	326.69	80.68	31.41	1554.31	1550.23	99.7
	Percentage	--	--	25%	47%	21%	5%	2%			
Plus4CompSieveTest.0-6 [1]	Mass	634.57	650.70	16.34	3.23	4.58	4.06	4.48	1318.19	1317.96	100
	Percentage	48.1%	49.4%	1.2%	0.2%	0.3%	0.3%	0.3%			
Minus4CompSieveTest.6-12	Mass	--	--	360.63	566.43	273.14	117.18	47.48	1367.14	1364.14	99.8
	Percentage	--	--	26%	42%	20%	9%	3%			
Plus4CompSieveTest.6-12 [2]	Mass	564.80	616.39	21.04	7.65	6.10	3.91	3.21	1223.98	1223.1	99.9
	Percentage	46.2%	50.4%	1.7%	0.6%	0.5%	0.3%	0.3%			

Notes:

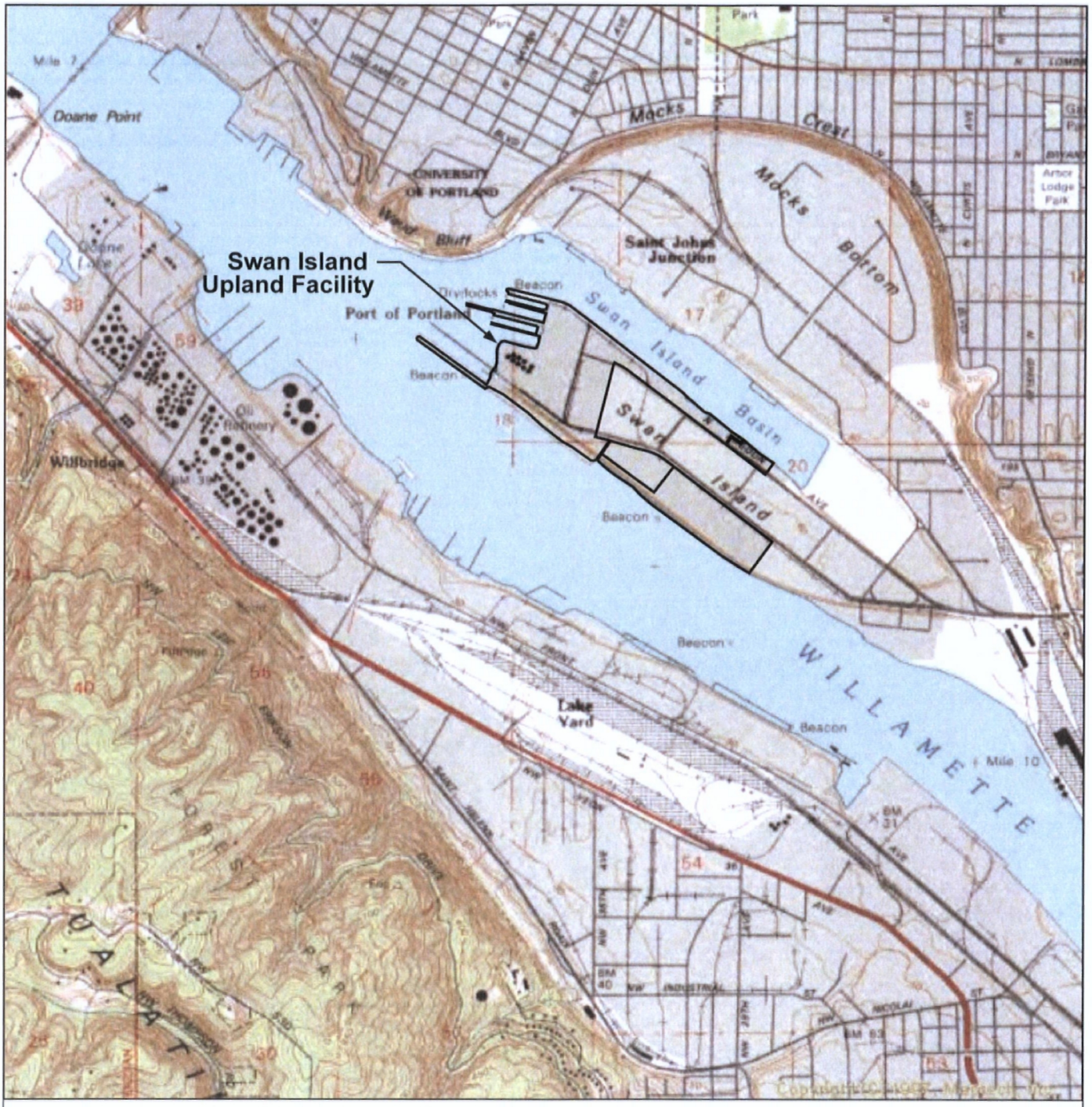
1. Shaded mass combined (32.7 grams) and named Plus4PNo.4.0-6.
2. Shaded mass combined (41.9 grams) and named Plus4PNo.4.6-12.

Table 3
Surface Soil Analytical Results - Arsenic and TCLP Arsenic
Operable Unit 2, Daimler Leasehold, Swan Island Upland Facility
Portland, Oregon

Sample Name	Depth Interval (inches)	Sample Date	Total Arsenic Concentration in mg/kg (ppm)	TCLP Arsenic Concentration in mg/L (ppm)
SieveTest.0-6a	0 - 6	11/23/2013	9.5	--
SieveTest.6-12a	6 - 12	11/23/2013	6.6	--
SieveTest.0-6b	0 - 6	11/23/2013	36.9	--
SieveTest.6-12b	6 - 12	11/23/2013	20.7	--
SieveTest.0-6c	0 - 6	11/23/2013	478	--
SieveTest.6-12c	6 - 12	11/23/2013	35.1	--
SieveTest.0-6d	0 - 6	11/23/2013	204	--
SieveTest.6-12d	6 - 12	11/23/2013	16.1	--
SieveTest.0-6e	0 - 6	11/23/2013	138	--
SieveTest.6-12e	6 - 12	11/23/2013	9.1	--
CompSieveTest.0-6	0 - 6	11/23/2013	230	<0.05
CompSieveTest.6-12	6 - 12	11/23/2013	10.4	<0.05
Minus4CompSieveTest.0-6	0 - 6	11/23/2013	210	<0.05
Minus4CompSieveTest.6-12	6 - 12	11/23/2013	17.5	<0.05
Plus4CompSieveTest.0-6	0 - 6	11/23/2013	7.1	--
Plus4CompSieveTest.6-12	6 - 12	11/23/2013	<4.1	--
Plus4PNo.4.0-6	0 - 6	11/23/2013	134	--
Plus4PNo.4.6-12	6 - 12	11/23/2013	10.3	--

Notes:

1. mg/kg (ppm) = Milligrams per kilogram (parts per million)
2. -- = Not analyzed.
3. Total arsenic is analyzed by EPA Method 6010C
4. TCLP = Toxicity Characteristic Leaching Procedure by EPA Method 1311



NOTE: Base map prepared from USGS 7.5-minute quadrangles as provided by Topozone. (1990)

0 2,000 4,000

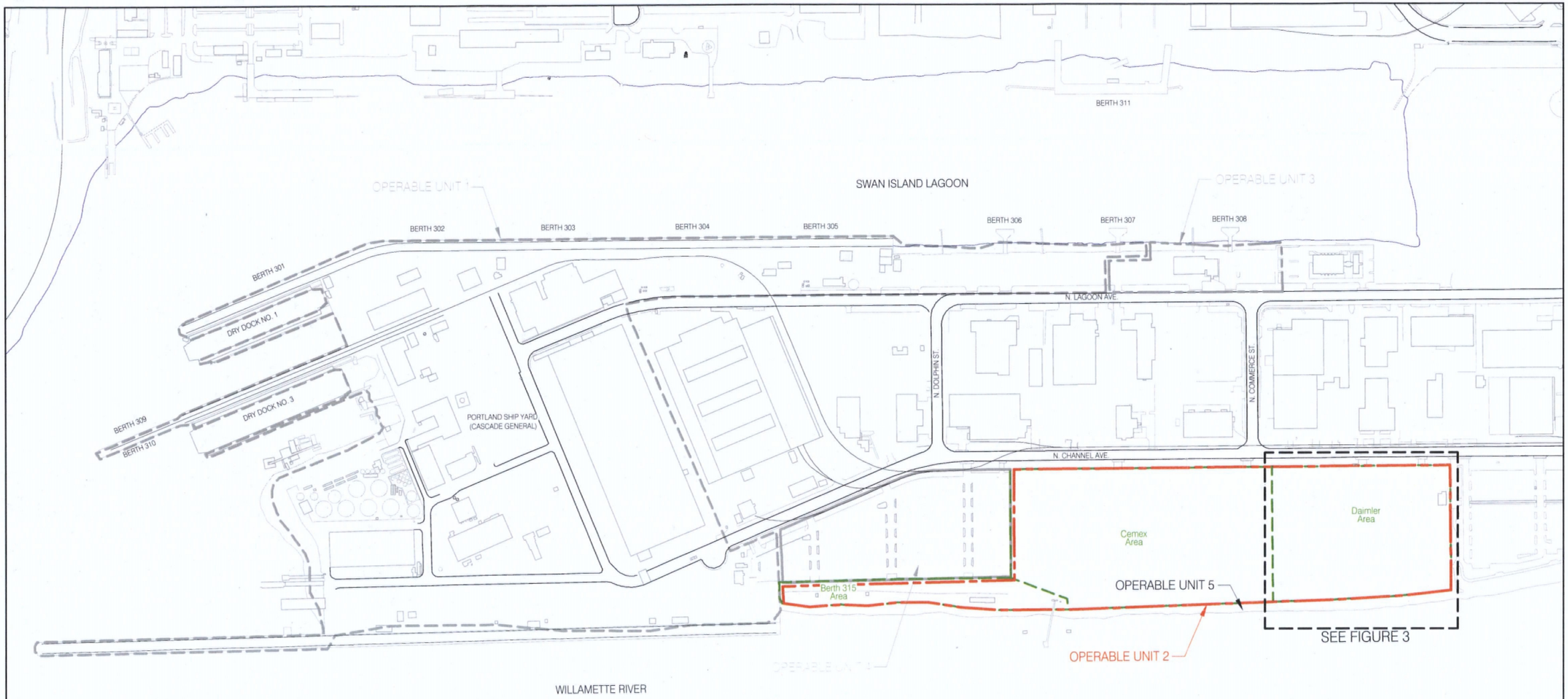
Approximate Scale in Feet

N

Facility Location Map

Sieve Test Results
Swan Island Upland Facility Operable Unit 2
Portland, Oregon

Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	1115-16	Figure 1
	December 2013		



Legend:

- Operable Unit 1 Boundary
- Operable Unit 2 Boundary
- Operable Unit 3 Boundary
- Operable Unit 4 Boundary
- Exposure Area

NOTE:
1. Prepared from AutoCAD base map received from the Port of Portland in June 2007.

N

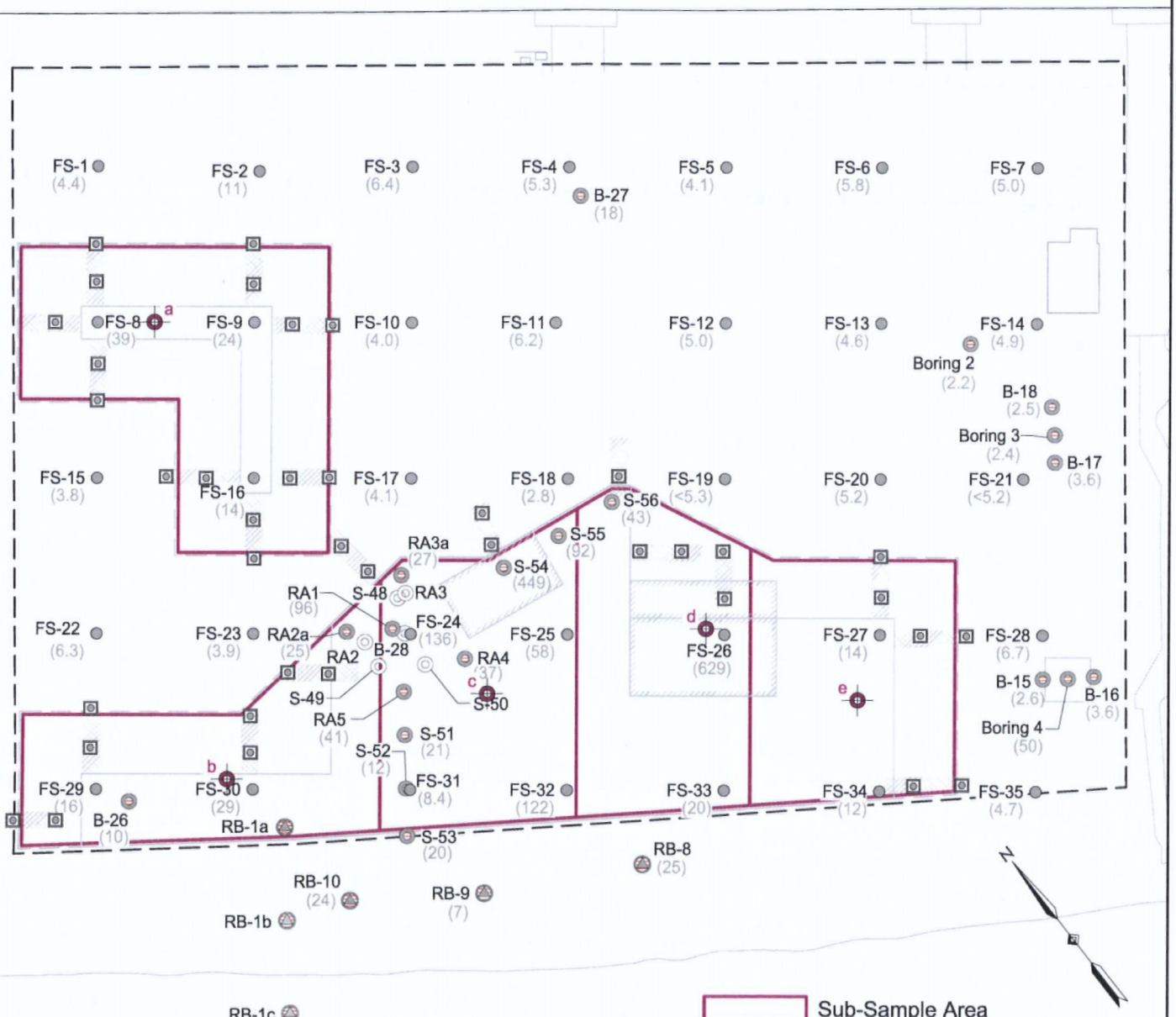
0 400 800

Scale in Feet

Facility Vicinity Plan

Sieve Test Results
Swan Island Upland Facility Operable Unit 2
Portland, Oregon

Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	1115-16	Figure 2
	December 2013		



Legend:

- (10) Arsenic Concentration in mg/kg
- Minimum / Maximum — Estimated Range of Excavation (Estimated Depth = 0.5 to 1.5 feet)
- Estimated Extent Exceeding Hot Spot Level (170 mg/kg)
- FS-1 — 2012 Exploration Location
- B-26 — Soil Sampling Location
- RB-1a — Riverbank Soil Sampling Location
- B-28 — Soil Sampling Location (Soil Removed During 2006 Removal)
- Daimler Trucks North America Lease Area (Approximate)
- Sub-Sample Area
- a — Sub-Sample Location and Designation
- Approximate Confirmation Sample Station Location
- Approximate Confirmation Sample Location

0 100 200

Scale in Feet

NOTES:

1. Where multiple samples collected at a location, concentration shown is maximum in the depth interval of 0-3 feet.
2. Arsenic concentrations greater than the Remediation Level detected only in the 0-1 foot interval.

Sampling Plan

Sieve Test Results
Swan Island Upland Facility Operable Unit 2
Portland, Oregon

APEX Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	1115-16	Figure 3
	December 2013		

Attachment A

Analytical Laboratory Reports

December 18, 2013 Analytical Report for Service Request No: K1312907

Herb Clough
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

RE: SIUF OU2 Sieve Bench Test/1115-16

Dear Herb:

Enclosed are the results of the samples submitted to our laboratory on November 25, 2013. For your reference, these analyses have been assigned our service request number K1312907.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3363. You may also contact me via Email at Lisa.Domenighini@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Lisa Domenighini
Project Manager

LD/mj

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.caslab.com or at the accreditation bodies web site

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

ALS ENVIRONMENTAL

Client:	Apex Companies, LLC	**Service Request No.:**	K1312907
Project:	SIUF OU2 Sieve Bench Test/1115-16	**Date Received:**	11/25/13
Sample Matrix:	Soil		

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Sixteen soil samples were received for analysis at ALS Environmental on 11/25/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

On December 12, 2013 Herb Clough with Apex Companies, LLC approved the compositing scheme for the post-sieved samples. These samples were assigned total arsenic testing.

Total Metals

No anomalies associated with the analysis of these samples were observed.

TCLP Metals

No anomalies associated with the analysis of these samples were observed.

Approved by _____

CHAIN OF CUSTODY RECORD

K1312467

APEX

Client Name: Apex Companies
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

Project Manager: Michael Pickering
Project Name: SIUF OU2 Sieve Bench Test
Project Number: 1115-16
Sampler Name: Chris Clough/Chris Luk

Analytical Lab: ALS
Report To: Michael Pickering
Page: 1 of 2

	Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Ice	Preservative: HNO_3 (Red Label)	Preservative: HCl (Blue Label)	Preservative: NaOH (Orange Label)	Preservative: H_2SO_4 Plastic (Yellow Label)	Preservative: H_2SO_4 Glass/Yellow Label)	Preservative: None (Black Label)	Matrix: Groundwater	Matrix: Wastewater	Matrix: Drinking Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify)	Analyze For: Arsenic by EPA Method 6010	RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report
1	SieveTest 0-6a	11/23/13	1100	1	X			X						X					X		X		X		
2	SieveTest.6-12a	11/23/13	1120	1	X			X						X					X		X		X		
3	SieveTest.0-6b	11/23/13	1145	1	X			X						X					X		X		X		
4	SieveTest.6-12b	11/23/13	1205	1	X			X						X					X		X		X		
5	SieveTest 0-6c	11/23/13	1220	1	X			X						X					X		X		X		
6	SieveTest 6-12c	11/23/13	1250	1	X			X						X					X		X		X		
7	SieveTest 0-6d	11/23/13	1355	1	X			X						X					X		X		X		
8	SieveTest.6-12d	11/23/13	1415	1	X			X						X					X		X		X		
9	SieveTest.0-6e	11/23/13	1315	1	X			X						X					X		X		X		
10	SieveTest.6-12e	11/23/13	1335	1	X			X						X					X		X		X		

Special Instructions:
Bill to Apex Companies per ALS quote 30744.
**** See attached instructions for sieve testing.**

Method of Shipment: Courier

Laboratory Comments:

Temperature Upon Receipt.
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N

Relinquished by Name/Company	Date	Time	Received by Name/Company	Date	Time
Michael Pickering	11/25/2013	1015	Rachelle Vu Apex	11/25/13	1015
Rachelle Vu Apex	11/25/13	1040			
			V Smith, ALS	11/25/13	1220

CHAIN OF CUSTODY RECORD

K 1312904

APEX

Client Name:	Apex Companies	Telephone Number:	503 924 4704
Address:	3015 SW First Ave	Fax No.:	503.943 6357
City/State/Zip:	Portland, OR 97201		

Project Manager:	Michael Pickering	Analytical Lab:	ALS
Project Name:	SIUF OU2 Sieve Bench Test	Report To:	Michael Pickering
Project Number:	1115-16	Page:	2 of 2
Sampler Name:	Chris Clough/Chris Luk		

	Sample ID / Description	Date Sampled	Time Sampled	No of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Ice	HNO_3 (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass (Yellow Label)	None (Black Label)	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify)	Analyze For: Arsenic by EPA Method 6010	TCLP Arsenic	RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report
11	CompSieveTest.0-6	11/23/13	1430	1	X			X						X					X		X	X		X		
12	Minus4CompSieveTest.0-6	11/23/13	1445	4	X			X						X					X		X	X		X		
13	Plus4CompSieveTest.0-6	11/23/13	1445	4	X			X						X					X		X**			X		
14	CompSieveTest.6-12	11/23/13	1500	1	X			X						X					X		X	X		X		
15	Minus4CompSieveTest.6-12	11/23/13	1510	4	X			X						X					X		X	X		X		
16	Plus4CompSieveTest.6-12	11/23/13	1510	4	X			X						X					X		X**			X		

Special Instructions:
Bill to Apex Companies per ALS quote 30744.
**** See attached instructions for sieve testing.**

X** = Determine feasibility of analysis upon review and discuss with Apex.

Method of Shipment: Courier

Relinquished by Name/Company	Date	Time	Received by Name/Company	Date	Time
Michael Pickering	11/25/2013	1015	Rachelle V — Apex	11/25/13	1015
Rachelle V — Apex	11/25/13	1040	[illegible]	11/25/13	10:4[illegible]
			B Smith / ALS	11/25/13	1220

Laboratory Comments:

Temperature Upon Receipt
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N

Sieving Data

Service Request #: K1312907

Analyst: PFKL

Sample #	1/2" Sieve Wt. (g)	# 4 Sieve > 4.25mm Wt. (g)	# 10 Sieve > 2.00mm Wt. (g)	# 40 Sieve > 475um Wt. (g)	# 100 Sieve > 150um Wt. (g)	# 200 Sieve > 75um Wt. (g)	# 200 Sieve < 75um Wt. (g)	Initial Wt. (g)	Post Sieve Wt. (g)	Percent Recovery
K1312907-012			388.04	723.41	326.69	80.68	31.41	1554.31	1550.23	99.7
K1312907-013	634.57	650.70	16.34	3.23	4.58	4.06	4.48	1318.19	1317.96	100.0
K1312907-015			360.63	566.43	273.14	117.18	47.48	1367.14	1364.86	99.8
K1312907-016	564.80	616.39	21.04	7.65	6.10	3.91	3.21	1223.98	1223.10	99.9

Minus4CompSieveTest 0-6

Plus4CompSieveTest 0-6

In accordance with the work plan, combine masses highlighted in green (total of 32.7 g). This is sample Plus4PNo.4.0-6. Please analyze this sample for total

Minus4CompSieveTest 6-12

Plus4CompSieveTest6-12

In accordance with the work plan, combine masses highlighted in orange (total of 41.9 g). This is sample Plus4PNo.4.6-12. Please analyze this sample for total

Instructions (HFC, 12/12/2013):

Balance ID: K-BALANCE-42
Comments:

Analyst:	PF/KL	Date:	12/10/2013
Reviewed By:		Date:	

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client: Apex Companies, LLC
Project: SIUF OU2 Sieve Bench Test/1115-16
Sample Matrix: Soil

Service Request: K1312907

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
SieveTest.0-6a	K1312907-001	11/23/2013	11/25/2013	12/04/2013	90.0	
SieveTest.6-12a	K1312907-002	11/23/2013	11/25/2013	12/04/2013	94.2	
SieveTest.0-6b	K1312907-003	11/23/2013	11/25/2013	12/04/2013	94.9	
SieveTest.6-12b	K1312907-004	11/23/2013	11/25/2013	12/04/2013	95.1	
SieveTest.0-6c	K1312907-005	11/23/2013	11/25/2013	12/04/2013	96.4	
SieveTest.6-12c	K1312907-006	11/23/2013	11/25/2013	12/04/2013	92.6	
SieveTest.0-6d	K1312907-007	11/23/2013	11/25/2013	12/04/2013	94.9	
SieveTest.6-12d	K1312907-008	11/23/2013	11/25/2013	12/04/2013	87.4	
SieveTest.0-6e	K1312907-009	11/23/2013	11/25/2013	12/04/2013	91.8	
SieveTest.6-12e	K1312907-010	11/23/2013	11/25/2013	12/04/2013	90.4	
CompSieveTest.0-6	K1312907-011	11/23/2013	11/25/2013	12/04/2013	95.0	
CompSieveTest.6-12	K1312907-014	11/23/2013	11/25/2013	12/04/2013	91.7	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Apex Companies, LLC	**Service Request:**	K1312907
Project:	SIUF OU2 Sieve Bench Test/1115-16	**Date Collected:**	11/23/2013
Sample Matrix:	Soil	**Date Received:**	11/25/2013
		Date Analyzed:	12/04/2013

Duplicate Sample Summary

Total Solids

Prep Method:	NONE	**Units:**	PERCENT
Analysis Method:	160.3M	**Basis:**	Wet
Test Notes:			

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
SieveTest.0-6a	K1312907-001	90.0	90.1	90.1	<1	

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client: Apex Companies, LLC
Project: SIUF OU2 Sieve Bench Test/1115-16
Sample Matrix: Soil

Service Request: K1312907

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
Minus4CompSieveTest.0-6	K1312907-012	11/23/2013	11/25/2013	12/13/2013	93.9	
Minus4CompSieveTest.6-12	K1312907-015	11/23/2013	11/25/2013	12/13/2013	90.9	
Plus4PNo.4.0-6	K1312907-041	NA	12/12/2013	12/13/2013	99.1	
Plus4PNo.4.6-12	K1312907-042	NA	12/12/2013	12/13/2013	98.2	

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- Cover Page -
INORGANIC ANALYSIS DATA PACKAGE

Client : Apex Companies, LLC
Project Name : SIUF OU2 Sieve Bench Test
Project No. : 1115-16

Service Request : K1312907

Sample Name :	Lab Code :
SieveTest.0-6a	K1312907-001
SieveTest.0-6a	K1312907-001D
SieveTest.0-6a	K1312907-001S
SieveTest.6-12a	K1312907-002
SieveTest.0-6b	K1312907-003
SieveTest.6-12b	K1312907-004
SieveTest.0-6c	K1312907-005
SieveTest.6-12c	K1312907-006
SieveTest.0-6d	K1312907-007
SieveTest.6-12d	K1312907-008
SieveTest.0-6e	K1312907-009
SieveTest.6-12e	K1312907-010
CompSieveTest.0-6	K1312907-011
Minus4CompSieveTest.0-6	K1312907-012
Minus4CompSieveTest.0-6	K1312907-012D
Minus4CompSieveTest.0-6	K1312907-012S
CompSieveTest.6-12	K1312907-014
Minus4CompSieveTest.6-12	K1312907-015
Plus4PNo.4.0-6	K1312907-041
Plus4PNo.4.0-6	K1312907-041D
Plus4PNo.4.0-6	K1312907-041S
Plus4PNo.4.6-12	K1312907-042
Method Blank	K1312907-MB1
Method Blank	K1312907-MB2
Method Blank	K1312907-MB3

Comments:

ALS Group USA, Corp.
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Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/02/13

Total Metals

Sample Name :	SieveTest.0-6a	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-001	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	3.7	12/05/13	9.5	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/02/13

Total Metals

Sample Name :	SieveTest.6-12a	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-002	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	3.7	12/05/13	6.6	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/02/13

Total Metals

Sample Name :	SieveTest.0-6b	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-003	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	3.7	12/05/13	36.9	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/02/13

Total Metals

Sample Name :	SieveTest.6-12b	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-004	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	3.6	12/05/13	20.7	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/02/13

Total Metals

Sample Name :	SieveTest.0-6c	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-005	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	2.8	12/05/13	478	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/02/13

Total Metals

Sample Name :	SieveTest.6-12c	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-006	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	3.8	12/05/13	35.1	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/02/13

Total Metals

Sample Name :	SieveTest.0-6d	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-007	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	3.6	12/05/13	204	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/02/13

Total Metals

Sample Name :	SieveTest.6-12d	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-008	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	4.1	12/05/13	16.1	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/02/13

Total Metals

Sample Name :	SieveTest.0-6e	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-009	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	3.7	12/05/13	138	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/02/13

Total Metals

Sample Name :	SieveTest.6-12e	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-010	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	3.5	12/05/13	9.1	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/02/13

Total Metals

Sample Name :	CompSieveTest.0-6	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-011	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	3.4	12/05/13	230	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/12/13

Total Metals

Sample Name :	Minus4CompSieveTest.0-6	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-012	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	4.1	12/12/13	210	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/02/13

Total Metals

Sample Name :	CompSieveTest.6-12	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-014	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	3.8	12/05/13	10.4	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/12/13

Total Metals

Sample Name :	Minus4CompSieveTest.6-12	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-015	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	4.2	12/12/13	17.5	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	NA
Project No. :	1115-16	**Date Received :**	12/12/13
Matrix :	Soil	**Date Extracted :**	12/13/13

Total Metals

Sample Name :	Plus4PNo.4.0-6	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-041	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	4.0	12/16/13	134	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	NA
Project No. :	1115-16	**Date Received :**	12/12/13
Matrix :	Soil	**Date Extracted :**	12/13/13

Total Metals

Sample Name :	Plus4PNo.4.6-12	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-042	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	4.0	12/16/13	10.3	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	NA
Project No. :	1115-16	**Date Received :**	NA
Matrix :	Soil	**Date Extracted :**	12/02/13

Total Metals

Sample Name :	Method Blank	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-MB1	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	4.0	12/05/13	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies. LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	NA
Project No. :	1115-16	**Date Received :**	NA
Matrix :	Soil	**Date Extracted :**	12/12/13

Total Metals

Sample Name :	Method Blank	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-MB2	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	4.0	12/12/13	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	NA
Project No. :	1115-16	**Date Received :**	NA
Matrix :	Soil	**Date Extracted :**	12/13/13

Total Metals

Sample Name :	Method Blank	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-MB3	**Basis :**	Dry

Analyte	Analysis Method	MRL	Date Analyzed	Sample Result	Result Notes
Arsenic	6010C	4.0	12/16/13	ND	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/02/13
		Date Analyzed :	12/05/13

Duplicate Summary
Total Metals

Sample Name :	SieveTest.0-6a	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-001D	**Basis :**	Dry

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Arsenic	6010C	3.7	9.5	10.7	10.1	12	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/02/13
		Date Analyzed :	12/05/13

Matrix Spike Summary
Total Metals

Sample Name :	SieveTest.0-6a	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-001S	**Basis :**	Dry

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Arsenic	3.6	90.3	9.5	95.8	96	75-125	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/12/13
		Date Analyzed :	12/12/13

Duplicate Summary
Total Metals

Sample Name :	Minus4CompSieveTest.0-6	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-012D	**Basis :**	Dry

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Arsenic	6010C	4.0	210	248	229	17	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/12/13
		Date Analyzed :	12/12/13

Matrix Spike Summary
Total Metals

Sample Name :	Minus4CompSieveTest.0-6	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-012S	**Basis :**	Dry

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Arsenic	4.0	99.5	210	285	75	75-125	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	NA
Project No. :	1115-16	**Date Received :**	12/12/13
Matrix :	Soil	**Date Extracted :**	12/13/13
		Date Analyzed :	12/16/13

Duplicate Summary
Total Metals

Sample Name :	Plus4PNo.4.0-6	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-041D	**Basis :**	Dry

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Arsenic	6010C	4.0	134	155	145	15	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental

QA/QC Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	NA
Project No. :	1115-16	**Date Received :**	12/12/13
Matrix :	Soil	**Date Extracted :**	12/13/13
		Date Analyzed :	12/16/13

Matrix Spike Summary
Total Metals

Sample Name :	Plus4PNo.4.0-6	**Units :**	mg/Kg (ppm)
Lab Code :	K1312907-041S	**Basis :**	Dry

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Arsenic	4.0	99.9	134	226	92	75-125	

Comments:

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INORGANIC ANALYSIS DATA PACKAGE

Service Request : K1312907

Client : Apex Companies, LLC
Project Name : SIUF OU2 Sieve Bench Test
Project No. : 1115-16

Sample Name :	Lab Code :
CompSieveTest.0-6	K1312907-011
CompSieveTest.0-6	K1312907-011S
Minus4CompSieveTest.0-6	K1312907-012
CompSieveTest.6-12	K1312907-014
Minus4CompSieveTest.6-12	K1312907-015
Method Blank	K1312907-MB

Comments:

ALS Group USA, Corp.
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Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project Number :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date TCLP Performed :**	12/05/13
		Date Extracted :	12/06/13
		Date Analyzed :	12/10/13

Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
Units: mg/L (ppm) in TCLP Extract

Sample Name : CompSieveTest.0-6
Lab Code : K1312907-011

Analyte	EPA Method	MRL	Regulatory Limit *	Sample Result	Result Notes
Arsenic	3010A/6010C	0.05	5	ND	

* From 40 CFR Part 261, et al., and Federal Register, March 29, 1990 and June 29, 1990.

ALS Group USA, Corp.
dba ALS Enviromental
Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project Number :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date TCLP Performed :**	12/05/13
		Date Extracted :	12/06/13
		Date Analyzed :	12/10/13

Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
Units: mg/L (ppm) in TCLP Extract

Sample Name : Minus4CompSieveTest.0-6
Lab Code : K1312907-012

Analyte	EPA Method	MRL	Regulatory Limit *	Sample Result	Result Notes
Arsenic	3010A/6010C	0.05	5	ND	

* From 40 CFR Part 261, et al., and Federal Register, March 29, 1990 and June 29, 1990.

ALS Group USA, Corp.
dba ALS Enviromental
Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project Number :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date TCLP Performed :**	12/05/13
		Date Extracted :	12/06/13
		Date Analyzed :	12/10/13

Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
Units: mg/L (ppm) in TCLP Extract

Sample Name : CompSieveTest.6-12
Lab Code : K1312907-014

Analyte	EPA Method	MRL	Regulatory Limit *	Sample Result	Result Notes
Arsenic	3010A/6010C	0.05	5	ND	

* From 40 CFR Part 261, et al., and Federal Register, March 29, 1990 and June 29, 1990.

ALS Group USA, Corp.
dba ALS Enviromental
Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project Number :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date TCLP Performed :**	12/05/13
		Date Extracted :	12/06/13
		Date Analyzed :	12/10/13

Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
Units: mg/L (ppm) in TCLP Extract

Sample Name : Minus4CompSieveTest.6-12
Lab Code : K1312907-015

Analyte	EPA Method	MRL	Regulatory Limit *	Sample Result	Result Notes
Arsenic	3010A/6010C	0.05	5	ND	

* From 40 CFR Part 261, et al., and Federal Register, March 29, 1990 and June 29, 1990.

ALS Group USA, Corp.
dba ALS Enviromental
Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	NA
Project Number :	1115-16	**Date Received :**	NA
Matrix :	Soil	**Date TCLP Performed :**	12/05/13
		Date Extracted :	12/06/13
		Date Analyzed :	12/10/13

Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
Units: mg/L (ppm) in TCLP Extract

Sample Name : Method Blank
Lab Code : K1312907-MB

Analyte	EPA Method	MRL	Regulatory Limit *	Sample Result	Result Notes
Arsenic	3010A/6010C	0.05	5	ND	

* From 40 CFR Part 261, et al., and Federal Register, March 29, 1990 and June 29, 1990.

ALS Group USA, Corp.
dba ALS Enviromental
QA/QC Report

Client :	Apex Companies, LLC	**Service Request :**	K1312907
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project Number :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date TCLP Performed :**	12/05/13
		Date Extracted :	12/06/13
		Date Analyzed :	12/10/13

Matrix Spike Summary
Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
Units: mg/L (ppm) in TCLP Extract

Sample Name : CompSieveTest.0-6
Lab Code : K1312907-011S

Analyte	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery*	Result Notes
Arsenic	5.00	ND	4.74	95	

* From 40 CFR Part 261, et al., and Federal Register, March 29, 1990 and June 29, 1990.

December 31, 2013 Analytical Report for Service Request No: K1313872

Herb Clough
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

RE: SIUF OU2 Sieve Bench Test/1115-16

Dear Herb:

Enclosed are the results of the samples submitted to our laboratory on November 25, 2013. For your reference, these analyses have been assigned our service request number K1313872.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3363. You may also contact me via Email at Lisa.Domenighini@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Lisa Domenighini
Project Manager

LD/mj

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626 USA PHONE +1 360 577 7222 FAX +1 360 636 1068
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Environmental www.alsglobal.com
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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.caslab.com or at the accreditation bodies web site

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

ALS ENVIRONMENTAL

Client:	Apex Companies, LLC	**Service Request No.:**	K1313872
Project:	SIUF OU2 Sieve Bench Test	**Date Received:**	11/25/13
Sample Matrix:	Solid		

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Additional quality control analyses reported herein include: Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Two solid samples were received for analysis at ALS Environmental on 11/25/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C/fro upon receipt at the laboratory.

Total Metals

The samples were ground prior to testing for total arsenic.

No anomalies associated with the analysis of these samples were observed.

Approved by 

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Apex Companies, LLC	**Service Request:**	K1313872
Project:	SIUF OU2 Sieve Bench Test/1115-16		
Sample Matrix:	Soil		

Total Solids

Prep Method:	NONE	**Units:**	PERCENT
Analysis Method:	160.3M	**Basis:**	Wet
Test Notes:			

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
Plus4CompSieveTest.0-6	K1313872-001	11/23/2013	11/25/2013	12/26/2013	97.3	
Plus4CompSieveTest.6-12	K1313872-002	11/23/2013	11/25/2013	12/26/2013	97.4	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Apex Companies, LLC	**Service Request:**	K1313872
Project:	SIUF OU2 Sieve Bench Test/1115-16	**Date Collected:**	11/23/2013
Sample Matrix:	Soil	**Date Received:**	11/25/2013
		Date Analyzed:	12/26/2013

Duplicate Sample Summary

Total Solids

Prep Method:	NONE	**Units:**	PERCENT
Analysis Method:	160.3M	**Basis:**	Wet
Test Notes:			

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Plus4CompSieveTest.0-6	K1313872-001	97.3	97.3	97.3	<1	

ALS Group USA, Corp.
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INORGANIC ANALYSIS DATA PACKAGE

Client : Apex Companies, LLC
Project Name : SIUF OU2 Sieve Bench Test
Project No. : 1115-16

Service Request : K1313872

Sample Name :	Lab Code :
Plus4CompSieveTest.0-6	K1313872-001
Plus4CompSieveTest.0-6	K1313872-001D
Plus4CompSieveTest.0-6	K1313872-001S
Plus4CompSieveTest.6-12	K1313872-002
Method Blank	K1313872-MB

Comments:

ALS Group USA, Corp.
dba ALS Enviromental
Analytical Report

Client :	Apex Companies, LLC	**Service Request :**	K1313872
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/26/13

Total Metals
Units: mg/Kg (ppm)
Dry Weight Basis

Analyte:	Arsenic
Analysis Method:	6010C
Method Reporting Limit:	4.1
Date Analyzed:	12/30/13

Sample Name	**Lab Code**	
Plus4CompSieveTest.0-6	K1313872-001	7.1
Plus4CompSieveTest.6-12	K1313872-002	ND
Method Blank	K1313872-MB	ND

Comments:

ALS Group USA, Corp.
dba ALS Enviromental
QA/QC Report

Client :	Apex Companies, LLC	**Service Request :**	K1313872
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/26/13
		Date Analyzed :	12/30/13

Duplicate Summary
Total Metals

Sample Name :	Plus4CompSieveTest.0-6					**Units :**	mg/Kg (ppm)
Lab Code :	K1313872-001D					**Basis :**	Dry

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Arsenic	6010C	4.0	7.1	7.3	7.2	3	

Comments:

ALS Group USA, Corp.
dba ALS Enviromental
QA/QC Report

Client :	Apex Companies, LLC	**Service Request :**	K1313872
Project Name :	SIUF OU2 Sieve Bench Test	**Date Collected :**	11/23/13
Project No. :	1115-16	**Date Received :**	11/25/13
Matrix :	Soil	**Date Extracted :**	12/26/13
		Date Analyzed :	12/30/13

Matrix Spike Summary
Total Metals

Sample Name :	Plus4CompSieveTest.0-6	**Units :**	mg/Kg (ppm)
Lab Code :	K1313872-001S	**Basis :**	Dry

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Arsenic	4.1	102	7.1	104	95	75-125	

Comments: